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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/550,640	04/14/2000	Hiroyuki Kurokawa	1134.1271-DIV/DMP	9242

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EXAMINER	
JERABEK, KELLY L	

ART UNIT	PAPER NUMBER
2612	

DATE MAILED: 03/20/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/550,640	KUROKAWA ET AL.	
	Examiner	Art Unit	
	Kelly L. Jerabek	2612	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 December 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *45,47,48 and 55-58* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *45, 47-48 and 55-58* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/30/2005 has been entered.

Response to Arguments

Applicant's arguments filed 12/30/2005 have been fully considered but they are not persuasive.

Response to Remarks:

Applicant's arguments (RCE page 6) state that the Kinba reference fails to teach or suggest the use of any image pickup or imaging element and only teaches the use of film. The Examiner respectfully disagrees. Kinba discloses a line sensor (4) such as a CCD which converts the object image to electric image data (col. 3, lines 44-52).

Applicant's arguments (RCE page 6) state that the Kinba reference fails to teach or suggest, in the phase difference method used by the second estimating device, a memory device to store as a correction value the imaging positional deviation detected by the positional deviation detecting device when the image on the image pickup element is rendered in-focus with respect to the object image. The Examiner respectfully disagrees. The Kinba reference discloses in figure 43 an auto focus sensor module constituting an auto focus detecting device of an auto focus camera. The module includes a photographing optical system having a focus adjusting lens (14) disposed movably, beam splitting elements (15,16) for splitting light beams incident on the focus adjusting lens (14), a first image forming lens (fig. 43: lens for contrast detection method) for forming one of the light beams split into an image, and a second image forming lens (fig. 43: 2, lens for phase-difference detection method) for forming the other one of the light beams split into an image (col. 10, lines 17-32). The auto focus sensor module also includes a first focusing estimating portion (contrast detection portion) having a first imaging element (7) for picking up the image formed by the first image forming lens and a light metering area sensor (9) for detecting a difference of light amounts of picture elements (col. 1, ines 12-19; col. 3, lines 52-58). The first focusing estimating portion (contrast detection portion) includes a microcomputer (19) for focusing the object image by an amount of defocus that is detected (col. 1, lines 12-19; col. 4, lines 5-17). The auto focus sensor module also includes a second focusing estimating portion (phase-difference detection portion) having an image re-forming

optical system (3) for reforming light beams passing through portions with different pupils among the light beams for forming the image formed by the second image forming lens (2), and a second imaging element (4) for picking up the images formed by the image re-forming optical system (3) (col. 3, lines 44-52). The phase-difference detecting portion detects an amount and a direction of defocus by a phase-difference of an object image reproduced by two divided luminous fluxes by passing through different pupils of an aperture mask and focuses an object image by driving a lens based on the detected result of positional deviation (defocus amount) (col. 1, lines 20-27; col. 3, lines 44-52; col. 8, lines 1-12). The microcomputer (19) stores data and calculates an amount of defocus based on the stored data and also drives a motor (20) for focus operation in accordance with the defocus amount (col. 4, lines 4-17). Microcomputers include storage components as a part of their circuitry. Therefore, the Examiner is reading the microcomputer (19) as a storage device stored with a correction value (defocus amount). **Kinba discloses in figure 41 a flowchart showing a process of an autofocus detecting device in which in which an amount of defocus is first calculated by a first focusing estimating portion (contrast detecting method) and based on the result an amount of defocus may be calculated by a second focus estimating portion (phase-difference detecting method) (col. 9, lines 38-56). Therefore, a storage device (microcomputer 19) stores data (defocus amount) detected by a data detecting device (4) of a second focus estimating portion as a correction value when the image obtained by a first image forming lens (lens of first focus estimating portion) is focused on the object in the first plane.** The

microcomputer (19) also serves as a correcting device for correcting the focusing data by the defocus amount. Additionally, the auto focus sensor module disclosed by Kinba makes it possible to select at least one of the first focusing estimating portion (contrast detection portion) and the second focusing estimating portion (phase-difference detection portion) (col. 1, lines 55-62; col. 9, lines 27-29; figures 40a, 40b). Finally, the auto focus sensor module includes a motor (20) for moving the focus-adjusting lens (14) on the basis of the focusing data (col. 4, lines 4-17).

Applicant's arguments (RCE page 6) state that the Kinba reference fails to teach or suggest generating second focusing information to focus the image of the object on an image pickup element with respect to the object. The Examiner respectfully disagrees. Kinba discloses in figure 43 an auto focus apparatus for focusing an image of an object on a surface of an image pickup element (31), comprising: a photographing optical system having a focus adjusting lens (14) movably provided; a first focusing estimating device (contrast detection portion) to produce focusing information and having a first imaging element (7) for picking up the image formed by the first image forming lens and a light metering area sensor (9) for detecting a difference of light amounts of picture elements (col. 1, lines 12-19; col. 3, lines 52-58). The examiner takes Official Notice that it is well known in the art for focus detecting devices using a contrast detecting method to include a level detecting device such as a high pass filter for detecting a level of a proper frequency component. It would have been obvious to one of ordinary skill in the art at the time of invention for the contrast detecting method

of Kinba to include a level detecting device. The auto focus sensor module also includes a second focusing estimating device (phase-difference detection portion) including an imaging lens (2) to image at least a part of the light of the object image, split from the photographing optical system, an image re-forming system (3) to re-form images of light beams having passed locations different on pupil position of the imaging lens (2), a light receiving device (4) to receive the light beams of the images formed by the image re-forming system (3) (col. 3, lines 44-52; col. 10, lines 18-31; fig. 43). **The phase-difference detecting portion detects an amount and a direction of defocus by a phase-difference of an object image reproduced by two divided luminous fluxes by passing through different pupils of an aperture mask and focuses an object image by driving a lens based on the detected result of positional deviation (defocus amount) (col. 1, lines 20-27; col. 3, lines 44-52; col. 8, lines 1-12). Therefore, the second focusing estimation device (phase-difference detection portion) generates second focusing information to focus an image of an object on an image pickup element with respect to an object.** Kinba also states that analog data of electric charge output from a CCD in an AF sensor module is stored in a memory and a microcomputer (19) calculates an amount of defocus based on the stored data and also drives a motor (20) for focus operation in accordance with the defocus amount (col. 4, lines 4-17). Thus, it can be seen that the microcomputer (19) serves as a positional deviation detecting device to detect an image positional deviation on a light receiving device, a memory device to store the positional deviation as a correction value when an image on the image pickup element is focused on the object

image, and a correcting device to correct the imaging positional deviation detected by the positional deviation detecting device with the correction value stored in the memory device . Additionally, the auto focus sensor module disclosed by Kinba makes it possible to select at least one of the first focusing estimating portion (contrast detection portion) and the second focusing estimating portion (phase-difference detection portion) (col. 1, lines 55-62; col. 9, lines 27-29; figures 40a, 40b). Finally, the auto focus sensor module includes a motor (20) for moving the focus adjusting lens (14) on the basis of the focusing data (col. 4, lines 4-17).

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 45, 47-48 and 55-58 rejected under 35 U.S.C. 103(a) as being unpatentable over Kinba et al. US 5,597,999.

Re claim 55, Kinba discloses in figure 43 an auto focus apparatus for focusing an image of an object on a surface of an image pickup element (31). Although the image

pickup element (31) is a film equivalent face Kinba discludes CCD line sensors (4) capable of converting the object image into electric image data for focus detection (col. 3, lines 44-58). Therefore, it would have been obvious for one skilled in the art to have been motivated to replace the image pickup element (31) with a CCD line sensor in order to generated electric image data. Kinba further states that the auto focus apparatus includes: a photographing optical system having a focus adjusting lens (14) movably provided; a first focusing estimating device (contrast detection portion) to produce focusing information and having a first imaging element (7) for picking up the image formed by the first image forming lens and a light metering area sensor (9) for detecting a difference of light amounts of picture elements (col. 1, lines 12-19; col. 3, lines 52-58). The examiner takes Official Notice that it is well known in the art for focus detecting devices using a contrast detecting method to include a level detecting device such as a high pass filter for detecting a level of a proper frequency component. It would have been obvious to one of ordinary skill in the art at the time of invention for the contrast detecting method of Kinba to include a level detecting device. The auto focus sensor module also includes a second focusing estimating device (phase-difference detection portion) including an imaging lens (2) to image at least a part of the light of the object image, split from the photographing optical system, an image re-forming system (3) to re-form images of light beams having passed locations different on pupil position of the imaging lens (2), a light receiving device (4) to receive the light beams of the images formed by the image re-forming system (3) (col. 3, lines 44-52; col. 10, lines 18-31; fig. 43). **The phase-difference detecting portion detects an amount and a**

direction of defocus by a phase-difference of an object image reproduced by two divided luminous fluxes by passing through different pupils of an aperture mask and focuses an object image by driving a lens based on the detected result of positional deviation (defocus amount) (col. 1, lines 20-27; col. 3, lines 44-52; col. 8, lines 1-12). Therefore, the second focusing estimation device (phase-difference detection portion) generates second focusing information to focus an image of an object on an image pickup element with respect to an object. Kinba also states that analog data of electric charge output from a CCD in an AF sensor module is stored in a memory and a microcomputer (19) calculates an amount of defocus based on the stored data and also drives a motor (20) for focus operation in accordance with the defocus amount (col. 4, lines 4-17). Thus, it can be seen that the microcomputer (19) serves as a positional deviation detecting device to detect an image positional deviation on a light receiving device, a memory device to store the positional deviation as a correction value when an image on the image pickup element is focused on the object image, and a correcting device to correct the imaging positional deviation detected by the positional deviation detecting device with the correction value stored in the memory device . Additionally, the auto focus sensor module disclosed by Kinba makes it possible to select at least one of the first focusing estimating portion (contrast detection portion) and the second focusing estimating portion (phase-difference detection portion) (col. 1, lines 55-62; col. 9, lines 27-29; figures 40a, 40b). Finally, the auto focus sensor module includes a motor (20) for moving the focus adjusting lens (14) on the basis of the focusing data (col. 4, lines 4-17).

Re claim 45, the auto focus sensor module includes a microcomputer (19) that stores data and calculates an amount of defocus based on the stored data and also drives a motor (20) for focus operation in accordance with the defocus amount (col. 4, lines 4-17).

Re claim 47, the auto focus sensor module includes a microcomputer (19) that stores data and calculates an amount of defocus based on the stored data and also drives a motor (20) for focus operation in accordance with the defocus amount (col. 4, lines 4-17).

Re claim 48, the auto focus sensor module the phase-difference detecting method makes a rough adjustment based on a focus detection and the contrast detecting method makes an exact adjustment based on a focus detection in order to drive a lens into an in-focus condition (col. 1, lines 55-59; col. 9, lines 15-37). Therefore, the first focusing estimating portion (contrast detecting method) is selected if the imaging positional deviation (amount of defocus change) is under a predetermined value, and the second focusing estimating portion (phase-difference detecting method) is selected if the imaging positional deviation (amount of defocus change) is larger than a predetermined value.

Re claim 56, Kinba states in an embodiment of the invention that in the event that it is determined that an object is not moving (fig. 40 step #45) or the amount of defocus change is not large (fig. 40 step #46) the contrast detecting method is not performed (col. 9, lines 15-37). Therefore, it can be seen that only data from the second focusing estimating device (phase-difference detecting method) is selected when the answer is no at steps #45 or #46 (it is determined that contrast detection method is useless).

Re claim 57, Kinba discloses a focus position inputting device (switch) to input data about a position of the focus area to create the data to focus the object corresponding to the image on the relevant area in an area on an imaging element wherein the first focusing estimating device (contrast detection method) and the second focusing estimating device (phase-difference detection method) create the data to focus the image on an image pickup element with respect to the focus area existing in the position inputted by the focus position inputting device (switch) (col. 4, lines 50-55; fig. 9).

Re claim 58, Kinba states that the camera is provided with a switch for changing over distance measuring area and data of only the distance measuring area selected by the switch is read out from the area sensor and the focusing lens is driven based on the data in order to carry out focusing (col. 4, lines 50-55). Therefore, it can be seen in the event that the focus area position inputted by the focus position inputting device (switch) is a position that can not be detected by the image re-forming system of the second

focusing estimating device (phase-difference detection method) the selecting device selects on the data given from the first focusing estimation device (contrast).

Contacts

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kelly L. Jerabek whose telephone number is **(571) 272-7312**. The examiner can normally be reached on Monday - Friday (8:00 AM - 5:00 PM).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Ometz can be reached on **(571) 272-7593**. The fax phone number for submitting all Official communications is **(703) 872-9306**. The fax phone number for submitting informal communications such as drafts, proposed amendments, etc., may be faxed directly to the Examiner at **(571) 273-7312**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

KLJ

DAVID OMETZ
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